

REMARKS

Favorable reconsideration and allowance of the subject application are respectfully requested. Claims 1-14 are pending in the present application, with claims 1, 7, and 14 being independent. Claims 7-14 have been added by this amendment, which do not add any new subject matter.

Specification

Applicant submits herewith a substitute specification, correcting the minor informalities identified by the Examiner and placing the application into proper form for U.S. patent practice. Further, Applicant respectfully submits that the substitute specification does not add any new subject matter. Accordingly, withdrawal of the objection is respectfully requested.

Claim Objections

The Examiner objected to claim 1 because of a minor informality. Applicant has amended the claims in an effort to correct this minor informality and to place the claims into proper form for U.S. patent practice.

Claim Rejections Under 35 USC §112

The Examiner rejected claims 1 and 3-5 under 35 U.S.C. §112, second paragraph, because of a few minor informalities. This

rejection is respectfully traversed.

As stated above, the claims were amended in an effort to correct each of the informalities identified by the Examiner. Accordingly, withdrawal of the rejection is respectfully requested.

Claim Rejections Under 35 USC §103

The Examiner rejected claims 1-6 under 35 U.S.C. 103(a) as being unpatentable over Van Ryzin (US 6,127,941) in view of Meyerle (US 4,081,747). This rejection is respectfully traversed insofar as it pertains to the presently pending claims.

Independent claim 1 is directed to a radio device for transmitting and receiving in a complex wireless transmission system. The radio device includes an integrated remote control interface that is connected by a wireless link to a mobile remote control device through which operating functions of the radio device can be remotely controlled and through which operating states of the radio device can be remotely monitored. The integrated remote control interface transmits the operating states and additional data to the mobile remote control device and receives the operating functions and the additional data from the mobile remote control device. The wireless link has additional protective measures to ensure error-free transmission of the operating functions, the operating states, and the additional data.

Meyerle is directed to a remote control arrangement for a

communication system that has a frequency that lies within an information frequency band of the apparatus. Van Ryzin is directed to a remote control unit that transmits and receives control commands to and from multimedia components.

Applicant respectfully submits that the cited art fails to teach or suggest at least that: (1) an integrated remote control interface (which is integrated into the radio device) transmits: (a) operating states and (b) additional data to a mobile remote control device; and (2) an integrated remote control interface the receives (a) operating functions and (b) additional data from the mobile remote control device.

In fact neither Meyerle nor Van Ryzin teach or suggest this above-recited feature. For example, referring to Fig. 1a of Van Ryzin, it can be clearly seen that the alleged remote device (e.g., TV 120, receiver 130, DVD 124, etc.) is not integrated with the transceiver 132, which as clearly stated in the second paragraph on page 2 of the present application has the disadvantage because such systems are "unable to meet the high demands made of radio devices having a plurality of complex operating functions, especially since information must also be transmitted with the radio devices at the same time."

Furthermore, the remote control unit 100 of Van Ryzin does not transmit to the transceiver 132 both operating functions and additional data. Applicant recognizes that the transceiver 138 of

Van Ryzin transmits additional data to the remote control unit 100, however, this data is not transmitted to the transceiver 132, nor does the remote control unit 100 transmit any data other than an operating function.

Additionally, Applicant respectfully submits that one skilled in the art would not combine Meyerle with Van Ryzin because Meyerle is based on an analog system and Van Ryzin is based on a digital system. Therefore, one skilled in the art could not combine the references without providing any additional conversion means (which neither reference teaches). In other words, analog data is not compatible for digital devices without utilizing an appropriate interface or an adapter for converting the analog signals to digital signals, and vice versa.

Dependent claims 2-6 should be considered allowable at least for depending from an allowable base claim. Accordingly, Applicant respectfully requests that the Examiner withdraw the rejection.

New claims 7-14 should be considered allowable at least because the cited art fails to teach or suggest the combination of elements including at least: that a mobile remote control device has a transmitter for transmitting at least operating data and user data via a direct secured wireless link to a remote device, the operating data providing for remote control of the remote device, as recited in claim 7; or that a mobile remote control device receives operating state data indicating an operating state of a

remote device and transmits operating data and user data via a direct secured wireless link to the remote device, as recited in claim 14.

Conclusion

In view of the above amendments and remarks, this application appears to be in condition for allowance and the Examiner is, therefore, requested to reexamine the application and pass the claims to issue.

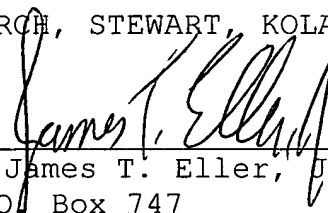
Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact Martin Geissler (Reg. 51,011) at telephone number (703) 205-8000, which is located in the Washington, DC area.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

Respectfully submitted,

BIRCH, STEWART, KOLASCH & BIRCH, LLP

By


James T. Eller, Jr., Reg.#39,538

P.O. Box 747

Falls Church, VA 22040-0747

(703) 205-8000

JTE/MRG:tm

Attachment:

Replacement Drawing (1 Sheet)

MARKED-UP VERSION OF THE ORIGINAL SPECIFICATION

Radio Device with Remote Control

This application is the national phase under 35 U.S.C. § 371 of PCT International Application No. PCT/EP99/01055 which has an International filing date of February 18, 1999, which designated the United States of America.

BACKGROUND OF THE INVENTION

1. Field of the Invention

The present This invention relates to a radio device with a plurality of adjustable transmitting and receiving functions suitable for transmitting information in a complex wireless transmission system, e.g., in the shortwave range.

2. Description of the Background Art

It is known that stationary radio devices or radio devices installed in motor vehicles can be operated ~~as shortwave transmitting and receiving devices~~ by using remote control devices positioned locally a few meters away or at a greater distance, whereby the status of these radio devices can be monitored and the transmissions/reception information can be transmitted by these remote control devices. Therefore, a suitable interface for a cable connection between a radio device and a remote control device is provided on the radio device.

~~In wireless transmission systems which operate with such remote control devices, there~~ There is an increasing demand for free mobility of the user in space or over land without being tied to the radio device by cables or the like. This demand is encountered in particular with highly mobile applications such, for example, tactical military campaigns or other spontaneous actions such as rescue and emergency actions.

In the field of telephones, it is known that with so-called cordless telephones, for example, a hand-held device can be connected by wireless link to a mobile base unit (German Patent No. 4,237,395). Not only speech information but also program parameters for the base unit can be transmitted over these wireless links. Thus, for example, control commands can be transmitted to an electrical appliance such as a washing machine, or status information can be obtained from such an electric appliance by providing the appliance with such a transmitting and receiving device connected to a central telephone system (European Patent No. 800,303). However, this arrangement, which was developed for telephone systems, is unable to meet the high demands made of radio devices having a plurality of complex operating functions, especially since information must also be transmitted with the radio devices at the same time.

SUMMARY OF THE INVENTION

It is therefore an ~~Therefore, the~~ object of the present invention is to provide a system with which the above-mentioned demand for free mobility of the user can also be met with such wireless transmission systems where high demands are made of the operating functions.

~~On the basis of a radio device according to the definition of the species of the main claim, this object is achieved by the characterizing features of that claim. Advantageous refinements are derived from the subordinate claims.~~

~~According to this invention, a known~~ **According to the invention, a** wireless link is used for transmitting the operating functions as well as transmitting information between a remote control device and the actual radio device, ~~but this.~~ **This** wireless link also has appropriate protective measures to ensure error-free transmission. Thus, such a radio device which has a plurality of complex operating functions and is used for information transmission in a complex wireless transmission system such as a shortwave transmission system can also be remotely controlled and remotely monitored by the user, while the user can nevertheless move freely in space or over land.

With the system according to this the invention, the mobile remote control device is connected directly to the radio device instead of being connected by way of an intermediate central telephone exchange, as is the case with the known cordless telephone systems (European Patent No. 800,303), so this system is also extremely reliable in operation and cannot be paralyzed by failure of the central exchange.

The additional protective measures in wireless transmission ensure that unauthorized persons cannot intervene in the operating and information transmission system. The measure according to this invention is suitable for transmitting speech as well as other information, possibly even in a time-division multiplex method. With the radio device according to this invention, the actual complex devices for setting the transmission and reception functions and for establishing the connection remain in the actual radio device, and only the operating and monitoring commands together with the speech information or data information are exchanged over the remote control wireless link.

With respect to the choice of the transmission frequency, the power, the coding (if used) and the data rate, the remote control wireless link is designed to permit secure transmission over a distance of several hundred meters, so that the security of the transmission is not significantly inferior to that required for the system as a whole. This is achieved, for example, by using a suitable power management method for the wireless link either optionally or simultaneously, using a secure transmission protocol such as ARQ for information transmission or using a band spread. Encoding is also possible on the remote control wireless link to protect the control data, monitoring data and information data.

Further scope of applicability of the present invention will become apparent from the detailed description given hereinafter. However, it should be understood that the detailed description and specific examples, while indicating preferred embodiments of the invention, are given by way of illustration only, since various changes and modifications within the spirit

and scope of the invention will become apparent to those skilled in the art from this detailed description.

BRIEF DESCRIPTION OF THE DRAWINGS

The present invention will become more fully understood from the detailed description given hereinbelow and the accompanying drawing, which is given by way of illustration only, and thus, is not limitive of the present invention, and wherein the single figure illustrates a block diagram of a preferred embodiment of the present invention.

DETAILED DESCRIPTION ~~This invention is explained in greater detail below with reference to a schematic diagram based on one embodiment.~~

The figure shows a conventional stationary or semi-mobile radio device 1 which has a plurality of complex functions and is suitable for transmitting information in a complex wireless transmission system, e.g., a shortwave transmission system. An interface 2 for a wireless connection over a remote control wireless link 3 is provided on radio device 1; ~~by means of~~ through which radio device 1 has a wireless connection to a locally positioned remote control device 4 over ~~this~~ the wireless link 3. The transmission frequency of this wireless link 3 is adjusted to the operational scenario and may be selected between a shortwave connection and an optical light (infrared) connection. ~~Remote~~ The remote control device 4, which can be hand-held, is battery powered, has a display field for the operating functions of radio device 1 and a corresponding operating field with which the user can set the individual operating functions of the radio device. In addition, a status display of the radio device in the display field is also possible. In addition, an interface 5 for input and output of the information to be transmitted over the radio device is also provided, ~~said~~ the information being, for example, speech or other digital data. Thus, not only is the locally positioned radio device 1 operated and monitored over wireless link 3 but also the actual transmission of information to hand-held the remote control device 4 take takes place over this wireless link.

Additional protective measures to ensure error-free transmission of operating data

and information data are also provided on wireless link 3. Wireless link 3 is equipped with suitable channel coding, for example, and data transmission is handled according to a known transmission protocol. In addition, measures for encoding and decoding the transmitted data may be provided to prevent unauthorized persons from penetrating the transmission link. In addition, measures to protect against outside interference may be provided, e.g., through a suitable signal spread (use of a suitable method of sudden frequency change or other coding measures).

If radio device 1 already has a remote control device 6 controller 6, which is connected by a cable 7 to the ~~actual~~ radio device 1, a suitable interface 2 may also be provided on a ~~corresponding~~ the remote control device controller 6, so that a wireless remote control link 3 to this the locally positioned remote control device 4 can be established, and again in this case, input and output of information to be transmitted over radio device 1 may also be provided by way of an interface 5. Thus, not only remote control data and remote monitoring data but also information can be transmitted over wireless link 3.

The invention being thus described, it will be obvious that the same may be varied in many ways. Such variations are not to be regarded as a departure from the spirit and scope of the invention, and all such modifications as would be obvious to one skilled in the art are to be included within the scope of the following claims.

What is claimed is:

ABSTRACT

~~The invention relates to a~~ A radio device with a plurality of adjustable transmitting and receiving functions is provided. According to the invention, the operating functions can be remotely controlled and remotely monitored via a remote control device. To this end, the remote control device is connected via a radio ~~rely~~ relay to an interface of the radio device, to which additional protective measure for securing a fault-free transmission of the operating functions and information are assigned. In addition, a device is provided on the remote control device for the input and output of the information to be transmitted with ~~said~~ the radio device.